



MARKET SPOTLIGHT

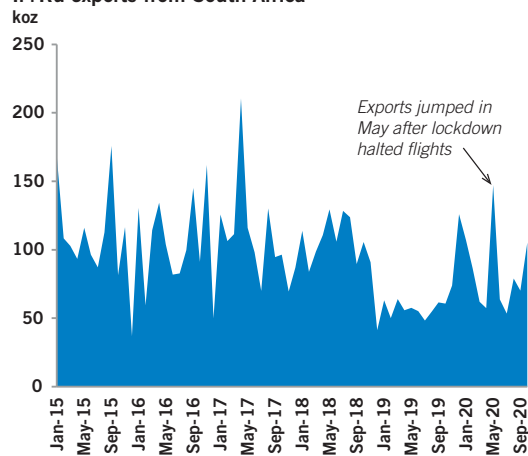
Constrained refined output to keep Ir and Ru prices elevated

After months of little to no movement, the iridium and ruthenium prices have rallied over the past four weeks. Iridium reached a new record high of \$3,950/oz last week (from \$1,750/oz in mid-December), while ruthenium hit \$335/oz after holding at \$295/oz since June. As off-exchange metals, iridium and ruthenium are less reactive (than platinum and palladium) to sudden changes in the market but an extended period of disruption to either supply or demand will eventually be reflected in the price.

The iridium market is less than a quarter of the size of those of ruthenium or rhodium. The combined impact of a nationwide lockdown in South Africa (which accounts for 80% and 90% of global Ir and Ru supply, respectively) and outages at Anglo American Platinum's ACP smelting facility last year has led to significant tightness in the smallest PGM markets.

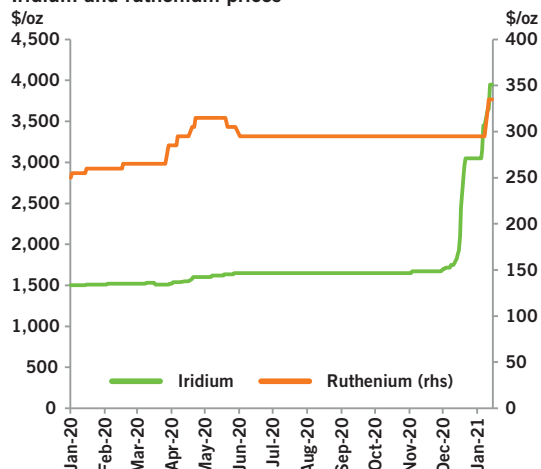
Demand for iridium and ruthenium remained relatively steady through the pandemic and was impacted less than supply. After the lockdown in March/April which had halted all flights, exports of iridium and ruthenium from South Africa jumped. Industrial demand is expected to be strong in 2021 as several end-use sectors return to market growth. Despite recent price rallies, iridium and ruthenium have a lower proportion of price elastic demand than other PGMs, with uses in several processes and components such as chemical catalysts and crucibles where it is difficult to substitute them out, so high prices are likely to be tolerated for longer. Post-pandemic recovery incentives and long-term global decarbonisation targets are also raising the profile of iridium (electrolysers) and ruthenium (fuel cells) in the hydrogen economy.

Ir+Ru exports from South Africa



Source: SFA (Oxford), Trade Data Monitor

Iridium and ruthenium prices



Source: SFA (Oxford), Heraeus

Refined output is lagging mined output and metal liquidity is expected to remain tight. By the end of 2020, mined production in South Africa had recovered close to levels seen before the lockdown in March/April, but the fallout from Anglo's ACP closure means that refined output is yet to return to 'normalised' rates. Furthermore, iridium has the longest processing time of all the PGMs, so supply is set to be impacted well into 2021, providing support for sustained high prices.



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,831	-1.31%	1,864	12/01/2021	1,823	15/01/2021
€/oz	1,514	-0.06%	1,533	12/01/2021	1,507	14/01/2021

Gold withdrawals from the Shanghai Gold Exchange fell to an eight-year low last year. The 162.3 tonnes of gold withdrawn in December took the SGE full-year volume to 1,205.3 tonnes, the lowest level of annual demand since 2012 and a 26.6% decline from 2019. December is generally a positive month for the Chinese gold market, as fabricators stock up ahead of anticipated demand for Chinese New Year and consumer purchasing power driven by year-end bonuses is usually highest. To some extent, last year was no exception, with December 2020 volumes higher both month-on-month and year-on-year, but the negative impact of the pandemic on demand earlier in

the year was too large to offset. Chinese New Year falls on 12 February this year and marks the start of a week-long holiday when it is traditional and auspicious to buy gold. While there are signs that gold demand in China is slowly improving, an upturn in new Covid cases threatens to undermine the success that China has had in restarting its economy as some cities have been locked down.

The gold price fell slightly last week. Expectations of further fiscal stimulus in the US being announced after Joe Biden's inauguration could help to support the price.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	24.79	-3.07%	25.90	14/01/2021	24.55	11/01/2021
€/oz	20.49	-1.85%	21.29	14/01/2021	20.23	11/01/2021

Expanding EV adoption sparks silver demand...subject to availability. The electrification of light vehicles, as well as the increasing complexity of internal combustion engine vehicles, is forecast to drive silver consumption in the automotive sector to around 90 moz by 2025, from an estimated 51 moz last year (source: The Silver Institute). However, some of the world's largest carmakers are facing a shortage of semiconductors owing to the stronger than anticipated recovery in global manufacturing, as well as

expanding EV adoption. Compounding the issue is strong demand from the electronics industry, with chip-makers unable to scale up production to meet requirements. Volkswagen has said that it expects to produce 100,000 fewer cars in Q1'21 owing to the parts shortage, which risks hindering the rebound for some automakers.

The silver price failed to recover after the sharp sell-off in the previous week, and closed under \$25/oz.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,085	0.46%	1,124	15/01/2021	1,010	11/01/2021
€/oz	896	1.65%	925	14/01/2021	832	11/01/2021

The world's largest PEM electrolyser will start production next year. The industrial gas company, Linde, will operate the 24 MW electrolyser at the Launa Chemical Complex in Germany, producing green hydrogen for its industrial customers. The electrolyser will be built by ITM Linde Electrolysis, a joint venture between Linde and ITM Power, using PEM (polymer electrode membrane) technology which contains platinum (and iridium). Based on current loadings, which at this early stage are generous, a PEM electrolyser of this scale accounts for a few hundred ounces of platinum. Elsewhere in Europe, industry giants Total and Engie have outlined plans to build France's

largest green hydrogen facility with a 40 MW electrolyser to feed Total's biodiesel plant from 2024. Platinum use in fuel cells, which includes automotive and industrial applications as well as electrolysers, accounted for a few tens of thousands of ounces in 2019 and grew by more than one-third last year.

The platinum price has continued to climb, breaking through \$1,100/oz but failed to hold above that level. The fundamental outlook has not improved but the price trend still appears to be up.



PRECIOUS METALS REVIEW

⁴⁶Pd **Palladium**

	Close	Weekly change	High	Date	Low	Date
\$/oz	2,392	1.34%	2,461	15/01/2021	2,346	11/01/2021
€/oz	1,977	2.67%	2,027	15/01/2021	1,930	11/01/2021

Thrifting and substitution short-circuits palladium electrical demand. Demand for electrical and electronic components is expected to be higher this year as several key markets, such as consumer electronics and 5G, return the market to growth. Yageo, one of the world’s largest resistor manufacturers, echoed this message in its latest sales report and intends to increase its MLCC (multi-layer ceramic capacitor) utilisation rate up to 90%. However, the prevalent downward demand trends of substitution and thrifting of palladium within the electrical sectors are likely to persist, particularly with today’s high prices, offsetting the growth in demand and reducing palladium

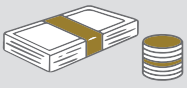
use. Palladium consumption in electrical components contracted by around 11% last year (-83 koz), predominantly owing to reduced demand in the main manufacturing regions of Japan, China and other parts of East Asia. Ongoing price-induced substitution to nickel oxide in MLCCs, currently palladium’s primary end-use in electronics, is set to continue. Palladium remains in a range between \$2,500/oz and \$2,200/oz. Lease rates have held steady and so the market does not appear tight enough for the price to break out of that range and follow the other PGMs higher.

⁴⁵Rh ⁴⁴Ru ⁷⁷Ir **Rhodium, Ruthenium, Iridium**

	Rhodium	Ruthenium	Iridium
Reporting week	\$21,950/oz	\$335/oz	\$3,950/oz
Previous week	\$18,950/oz	\$295/oz	\$3,450/oz

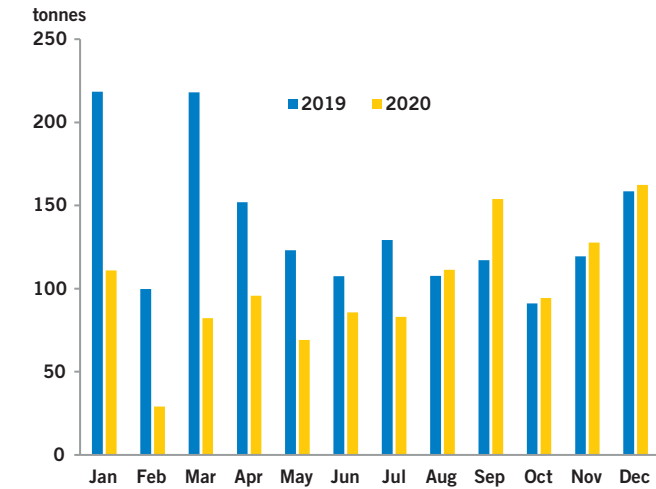
The rhodium price broke through \$21,000/oz last week and is up by 20.9% in the first two weeks of the year. Autocatalyst demand for rhodium is being led by China,

which is generating a two-fold surge in demand owing to its tightening emissions legislation and a growing vehicle market.



TRENDS AND INVESTMENTS

SGE gold withdrawals



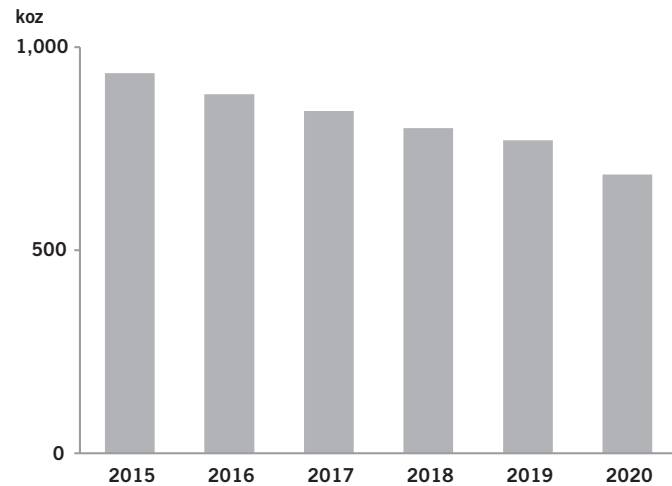
Source: SFA (Oxford), SGE

Platinum price



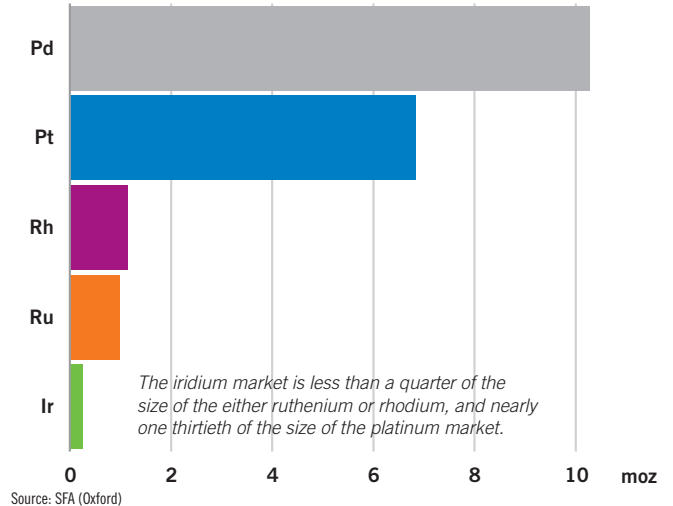
Source: SFA (Oxford), Heraeus

Palladium electrical demand



Source: SFA (Oxford)

PGM market size (annual demand)



Source: SFA (Oxford)

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